

# UTTARAKHAND TECHNICAL UNIVERSITY

## Information Brochure

UTTARAKHAND STATE ENTRANCE EXAMINATION – 2018

UKSEE - 2018

For admission to Academic Session 2018-19

in

1. BACHELOR OF PHARMACY (B. Pharm. – I Year)
2. BACHELOR OF HOTEL MANAGEMENT (BHMCT – I Year)
3. MASTER OF COMPUTER APPLICATIONS (MCA – I Year)
4. BACHELOR OF TECHNOLOGY (B. Tech) Lateral Entry 2nd year
5. BACHELOR OF PHARMACY (B. Pharm.) Lateral Entry 2nd year
6. MASTER OF COMPUTER APPLICATIONS (MCA), Lateral Entry 2nd year
7. MASTER OF BUSINESS ADMINISTRATION (MBA – I Year)
8. MASTER OF PHARMACY (M. PHARMA. . – I Year)
9. MASTER OF TECHNOLOGY (M.TECH – I Year)



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## INDEX

S. No.	Particulars	Page No.
1	Important Dates	03
2	Introduction	04
3	Important Instruction	04 - 05
4	General Instruction, Terms & Conditions	05 – 08
5	Qualification & Eligibility Requirements	08 - 11
6	Domicile Requirement	11
7	Reservation	11
8	Category	12
9	Centre for Admission Test	12
10	Scheme of Written Test	12 - 14
11	Schedule of Examination	14 - 15
12	Evaluation and Declaration of Result	15 – 16
13	Examination Fee & Refund of Fee	16
14	Scope of Examination, Evaluation & Eligibility for Admission UKSEE-2017 Courses	16 - 17
15	Syllabus	18 - 33
16	List of Institutions for B. Tech & Lateral Entry	34 - 42
17	List of Pharmacy Colleges	43 - 44
18	List of MCA Colleges	45
19	List of BHMCT Colleges	46
20	List of MBA Colleges	47-48

Candidates are advised to regularly check the University website [www.uktech.ac.in](http://www.uktech.ac.in) for any updates regarding UKSEE-2018.

## 1. IMPORTANT DATES

1	Availability of online application form	From 15 <sup>th</sup> April 2018 (Sunday) After 1:00 PM
2	Last date of submission of online application form and fee	30 <sup>th</sup> April 2018 (Monday) (12:00 Mid Night)
3	Online download of Admit Card	From 6 <sup>th</sup> May 2018 (Thursday) onwards
4	Date of Entrance Examination	10 <sup>th</sup> & 11 <sup>th</sup> May 2018
5	Time of Entrance Examination	As per schedule
6	Declaration of results	24 <sup>th</sup> May 2018 (Thursday) 12:00 Noon
7.	Examination Centre for 10 <sup>th</sup> May I Year – M. Tech., M. Pharm., MBA	<ul style="list-style-type: none"><li>• Dehradun(online/offline)</li><li>• Haldwani (online/offline)</li><li>• Roorkee(online/offline)</li></ul>
8.	Examination Centre for 11 <sup>th</sup> May I Year – BHMCT, B. Pharm., MCA II Year (Lateral Entry) – B. Tech., B. Pharm, MCA	<ul style="list-style-type: none"><li>• Dehradun(online/offline)</li><li>• Dwarahat (online/offline)</li><li>• Gopeshwer (offline)</li><li>• Haldwani (online/offline)</li><li>• New Tehri (offline)</li><li>• Pithoragarh (offline)</li><li>• Roorkee(online/offline)</li><li>• Srinagar(online/offline)</li></ul>
9.	Counselling	Month of June 2018

## **2. INTRODUCTION**

The University has been assigned the task of conducting UKSEE-2018 for admission to first year of MCA, BHMCT, B. Pharmacy, MBA, M.Pharm, M.Tech and to second year of B. Tech. & B. Pharmacy, MCA programmes offered at University Departments and Government/Private Institutes of Uttarakhand (hereafter referred to as institute) for the academic year 2018-19.

## **3. IMPORTANT INSTRUCTIONS**

- i. The lateral entry seats for B. Tech., B. Pharma., MCA, shall be filled by Uttarakhand Candidates only.
- ii. Admission to an institute implies acceptance by the candidate of all the provisions given in the brochure/prospectus of the University. Any change in the rules, regulations, fees, special conditions, etc. of the institute will apply to him/her.
- iii. The information indicated in the brochure/prospectus of an institute is only for general guidance of the candidates.
- iv. Incomplete application forms will not be accepted.
- v. The candidates are advised to read each and every instruction given in this information brochure very carefully before filling up the Online Application form.
- vi. Do not send the print out of your application form to University but you can keep a copy for your reference.
- vii. A candidate will submit separate application for different courses (B. Pharm. & BHMCT).
- viii. The application form will not be scrutinized, and hence the onus of proving the category of the candidate and eligibility criteria for admission to offered programmes lies solely with the candidate at the time of counselling.
- ix. Request for change of test centre and category shall not be entertained.
- x. The admit card can be downloaded from website [www.uktech.ac.in](http://www.uktech.ac.in) 6th May 2018 onwards.
- xi. Candidate must preserve the admit card till the admission process is over.
- xii. Notwithstanding any provisions in this brochure, with respect to reservation of seats and any particular matter related to admission, the latest Government Order issued by Government of Uttarakhand and the latest norms prescribed by AICTE as valid on the date of admission, shall be applicable. No claim in this regard by the candidate shall be entertained.
- xiii. The result of UKSEE-2018 declared by the Co-ordination Committee shall be final. There is no provision of scrutiny of Answer Books.

- xiv. The Co-ordination Committee is competent to take all decisions on matters relating to admission and allotment of the institutes mentioned in this Brochure and may frame rules in this regard. The decision of the Co-ordination Committee shall be final.
- xv. If any declaration submitted by the candidate is found to be false at any stage including his/her stay in the institute, his/her admission shall be cancelled and he/she will be liable for prosecution under the law.
- xvi. If a candidate, who is not eligible to appear in the Test, does so, he/she will not have any claim whatsoever for admission.
- xvii. Use of calculator and mobile phones during the examination is strictly prohibited.
- xviii. Candidate is required to write their Roll Numbers only at the space provided on the question booklet (front page) and the OMR answer sheet. A candidate will be disqualified if he/she writes his/her Roll No. or any other identification mark elsewhere in the OMR answer sheet.
- xix. In case of any legal dispute, the jurisdiction will be limited to Lower District Court, Dehradun and High Court, Nainital and will not be subjected to the jurisdiction of any other courts except Supreme Court.
- xx. The eligible candidates who get selected through UKSEE - 2018 will get admission against available state / state quota seats by counselling on merit cum choice basis.
- xxi. The Entrance Examination for admission to above courses (I Year – BHMCT, B. Pharm., MCA and II Year (Lateral Entry) – B. Tech. B. Pharm, MCA) for session 2018-19 will be held on dated 11th May 2018 at Dwarahat, Dehradun, Gopeshwer, Haldwani, Srinagar, Pithoragarh, Roorkee, New Tehri, centres only. The centres for Entrance Examination for I Year – M. Tech., M. Pharm and MBA is on 10th May 2018 is Dehradun, Haldwani and Roorkee only.

#### **4. GENERAL INSTRUCTIONS, TERMS AND CONDITIONS**

- i. The applicants are required to fill the application form and fee by ONLINE mode. The examination fee shall not be refunded under any circumstances.
- ii. The candidates have to complete the online/offline application form in all respect and also to upload his/her photograph in the appropriate box. The candidates are further advised to re-check the entries/information provided by him/her before submitting the same as there is no option for editing the entries after submission of application form. After submitting the form, the candidate is required to take the print of the submitted form (hard copy). The candidates are advised to retain the copy of the form submitted to the University for their further reference and queries.
- iii. Specifications for photograph are as below:

- A photograph of minimum 35X45 mm with at least 75% coverage of face & head of the candidate taken after 01-01-2018.
- A caption indicating name of candidate and date of taking photograph should be there at the bottom of photo.
- Photograph should be taken in a white/very light coloured background.
- The photograph needs to display full front view of the face. Please look directly into the camera with a natural expression.
- Please avoid with reflection of shadow on the face with red eyes.
- The photograph needs to be printed on a high quality paper with at least 600 dpi resolutions.
- The colours must possess the natural appearance and skin tone.
- The photograph must not have been kinks, scratches and stains.

The candidates have to upload and paste the above specifications photograph in application form and advised to keep at least 06 copies of same photographs. The candidates will have to produce the same copy of photograph in the process of counselling and admission etc.

- iv. **Last date for submission of online application form is 30<sup>th</sup> April 2018 (12:00 Mid Night)**
- v. The admit cards will be available at the university website [www.uktech.ac.in](http://www.uktech.ac.in) w.e.f. 6th May 2018. Admit cards will not be sent by post in any case.
- vi. Only appearing in the UKSEE-2018 does not confer any rights to secure seat in UKSEE course state quota seats. The selection and admission to UKSEE course on a state quota seats in any institute is subject to fulfilling all the eligibility criteria, state reservation policy etc. Mentioned in the Information Brochure and/ or amendments made thereafter till the time of counselling.
- vii. Fee shall neither be carried forward to a future date not refunded under any circumstances.
- viii. In case the information provided by the candidate found wrong in the application form, his/her application will be summarily rejected. If any candidate secures admission in the college/institute by providing wrong information in his/her application, detected later on in due course, his/her admission will be cancelled at the cost and risk of the candidate.
- ix. Candidates' eligibility is purely provisional and is subject to the fulfilment of eligibility criteria as prescribed in this Information Brochure, during subsequent verifications of his/her documents at counselling, admission or afterwards.
- x. University reserves the right to withdraw permission, if any, granted inadvertently to any candidate who is not eligible to appear in the UKSEE-2018 even though his/her admit card/ roll number has been issued.
- xi. Instructions in the Information Brochure are liable to change based on decisions consciously taken by the University/Counselling Board/Technical Education Department, Uttarakhand Government from time to time. There is no equity or any rights that are / or deemed to be arising in favour of candidate.

- xii. The candidate must ensure before filling the application form that he/she fulfils the eligibility requirements for admission/appearing in the entrance examination. Change of category is not permitted at later stage. The fee once paid shall not be refunded in the event of rejection of application. Only eligible candidates will be considered for admission.
- xiii. The candidates are advised to give their complete mailing address, ID proof details and correct contact telephone numbers and email in the application form.
- xiv. The records of the Entrance Examination & Counselling shall be preserved only for a period of one year from the date of the Entrance examination.
- xv. In all the matters relating to examination and admission, the decision of University/ Counselling Board and Government of Uttarakhand as the case may be, shall be final.
- xvi. A candidate found using unfair means in the Entrance Examination will invite cancellation of his/her result, non-refund of examination fee and punishment as may be deemed proper by the Examination Committee of the University and as per the provision of law.
- xvii. In case of any ambiguity in interpretation of any of the instructions/terms/rules/criteria the determination of eligibility/conduct of examinations/registration of candidate/information contained herein, the interpretation of the University/Counselling Board as the case may be, will be final and binding.

**Candidates MUST bring to the examination centre the following documents in original along with one attested photocopy-**

- Admit card issued by the University.
- Any one of the authorized photo IDs\* (must be original and non-expired) PAN card /Driving License/Voter ID/ Passport/Aadhar Card.)

\* The name of your photo identification must match with your name as shown on your admit card. If your name has been changed due to events such as marriage, you must show the relevant document mentioned at the time of written test (marriage certificate/Divorcee Decree/Legal Name Change Document).

**The staff on duty at the examination centre is authorized to verify the identity of candidates and may take steps to verify and record the identity of candidates. Candidates are required to extend requisite cooperation.**

**Candidate's thumb impression/signature/photographs will be taken twice, first at the time of examination in the presence of invigilator and second at the time of admission in the presence of Principal/admission committee of the institute.**

- xviii. The Entrance Examination for admission to above courses (I Year – BHMCT, B. Pharm., MCA and II Year (Lateral Entry) – B. Tech. B. Pharm, MCA) for session 2018-19 will be held on dated 11th May 2018 at Dwarahat, Dehradun, Gopeshwer, Haldwani, Srinagar, Pithoragarh, Roorkee, New Tehri, centres only.

The centres for Entrance Examination for I Year – M. Tech., M. Pharm and MBA is on 10th May 2018 is Dehradun, Haldwani and Roorkee only.

- xix. Candidates must reach their centre at least one hour before the commencement of the examination. No candidate will be allowed in the examination centre 15 minutes after the commencement of the examination.
- xx. No candidate will be permitted to leave the examination hall before the completion of written examination.
- xxi. Possession/Use of Mobile phones/Electronics devices is strictly prohibited in the premises of Examination Centre. Candidates shall be liable for penal action for Possession/Use of Mobile phones/Electronics devices.
- xxii. Carbon copy of answer sheet will be supplied to the candidates. Answer key will be uploaded on the University website [www.uktech.ac.in](http://www.uktech.ac.in).
- xxiii. For information regarding examination centre or any other query the candidates can contact, The Registrar, Uttarakhand Technical University, Sudhowala, Premnagar, Dehradun, or can call on telephone number 0135-2770126, 27, 28 (10:00 A.M. – 05:00 P.M.), Mobiles: Mobile: **+91 9760977815 & +91 9193917815**.

## **5. QUALIFICATIONS AND ELIGIBILITY REQUIREMENTS**

As per latest AICTE norms. ([www.aicte-india.org](http://www.aicte-india.org))

- i. ENGINEERING & TECHNOLOGY: B. Tech. Lateral Entry to 2nd year (for Uttarakhand Domicile & Academic domicile only)**
  - A. Passed Diploma examination from an AICTE approved Institution; with at least 45% marks (40% in case of candidates belonging to reserved category) in appropriate branch of Engineering / Technology.
  - B. Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks (40% in case of candidates belonging to reserved category) and passed XII standard with mathematics as a subject.
  - C. Provided that in case of students belonging to B. Sc. Stream, shall clear the subjects of Engineering Graphics / Engineering Drawing and Engineering Mechanics of the first year Engineering program along with the second year subjects.
  - D. Provided further that, the students belonging to B. Sc. Stream shall be considered only after filling the supernumerary seats in this category with students belonging to the Diploma stream.
  - E. Provided further that students, who have passed Diploma in Engineering and Technology from an AICTE approved Institution or B. Sc Degree from a recognized University as defined by UGC, shall also be eligible for admission to the first year Engineering Degree courses subject to vacancies in the first year class in case the vacancies at lateral entry are exhausted. However the admissions shall be based strictly on the eligibility criteria as mentioned in A, B,C, and D above.
- ii. PHARMACY (B. Pharm. 1<sup>st</sup> Year)**



Passed 10+2 examination with Physics and Chemistry as compulsory subjects along with one of the Mathematics /Biotechnology / Biology.

Obtained at least 45% marks (40% in case of candidate belonging to reserved category) in the above subjects taken together.

**iii. PHARMACY (B. Pharm. Lateral Entry - 2<sup>nd</sup> year) (for Uttarakhand Domicile & Academic domicile only)**

Passed Diploma examination in a Program from an AICTE approved Institution, with at least 45% marks (40% in case of candidates belonging to reserved category) in appropriate Program.

**iv. HOTEL MANAGEMENT & CATERING TECHNOLOGY (BHMCT)**

Should have passed 10+2 examination with English as compulsory subject.

Obtained at least 45% marks (40% in case of candidate belonging to reserved category) at the qualifying Examination.

**v. MCA (1<sup>st</sup> Year)**

Recognized Bachelor's Degree of minimum 3 years duration with Mathematics at 10+2 level or at Graduate Level.

Obtained at least 50% marks (45% in case of candidate belonging to reserved category) at the qualifying Examination.

**vi. MCA : Lateral Entry - 2nd Year (for Uttarakhand Domicile & Academic domicile only)**

Recognized Bachelor's Degree of minimum 3 years duration in BCA, B. Sc (IT/Computer Science) with Mathematics as a course at 10+2 level or at Graduate Level.

Obtained at least 50% marks (45% in case of candidate belonging to reserved category) at the qualifying Examination.

**vii. MBA (1<sup>st</sup> Year) - Recognized Bachelor's Degree of minimum 3 years duration. Obtained at least 50% marks (45% in case of candidate belonging to reserved category) at the qualifying Examination.**

**Note: CAT / MAT qualified candidates are eligible for counseling without appearing in UKSEE – 2018, however they have to fill up the registration form.**

**Admission through counseling will be offered first to CAT / MAT qualified candidates, and if seats remain vacant candidates qualifying the entrance examination of the University UKSEE – 2018 (In order of merit) will be offered**

**viii. M. Pharm. (1<sup>st</sup> Year) - Bachelor in Pharmacy. Obtained at least 55% marks (50% in case of candidate belonging to reserved category) at the qualifying Examination.**

**Note: GPAT qualified candidates are eligible for counseling without appearing in UKSEE – 2018, however they have to fill up the registration form.**

**Admission through counseling will be offered first to GPAT qualified candidates, and if seats remain vacant candidates qualifying the**

*entrance examination of the University UKSEE – 2018 (In order of merit) will be offered*

**ix. M. Tech.**

Bachelor's degree or equivalent in the relevant field.

Obtained at least 50% marks (45% in case of candidate belonging to reserved category) at the qualifying Examination.

**Note:** *GATE qualified candidates are eligible for counseling without appearing in UKSEE – 2018, however they have to fill up the registration form.*

*Admission through counseling will be offered first to GATE qualified candidates, and if seats remain vacant candidates qualifying the entrance examination of the University UKSEE – 2018 (In order of merit) will be offered*

Branch	Eligibility Criteria
Computer Science & Engineering	<p>For Computer Science and Engineering' Specialization : Bachelor's degree in Engineering / Technology or equivalent in an appropriate area or MSc (Computer Science/Information Technology) or Graduates (AMIETE) from Institution of Electronics and Telecommunication Engineers (IETE) in Computer Science &amp; Engineering or MCA from a recognized Institution and a valid GATE score in CS.</p> <p>For 'Theoretical Computer Science' Specialization : Bachelor's degree in Engineering / Technology or equivalent in an appropriate area or MSc (Computer Science/Information Technology) or Graduates (AMIETE) from Institution of Electronics and Telecommunication Engineers (IETE) in Computer Science &amp; Engineering or MCA from a recognized Institution and a valid GATE score in CS.</p> <p>OR</p> <p>MSc (Mathematics/Mathematics &amp; Computing/Statistics) from a recognized Institution, with a minimum CPI of 6.5 or 60% of marks or First Class in the qualifying degree, and a valid GATE score in MA.</p>
Electronics & Electrical Engineering	<p>Bachelor's degree in Electrical/ Electronics Engineering or Equivalent or MSc(Electronics) or Graduates (AMIETE) from Institution of Electronics and Telecommunication Engineers (IETE) in Electronics &amp; Telecommunication Engineering, and a valid GATE score in EC/EE</p> <p>For 'Power and Control' specialization, a valid GATE score in 'EE' or 'IN' is a must.</p>
Mechanical Engineering	<p>Bachelor's degree in Engineering / Technology in an appropriate area and a valid GATE score in:</p> <p>(a) 'ME' for the specializations of (i) Fluids and Thermal Engineering, and (ii) Machine Design; and</p> <p>(b) 'ME' or 'PI' for the specialization of "Computer Assisted Manufacturing" only; and</p>

	'ME' or ' Aerospace Eng.' for the specialization of "Computational Mechanics" and "Aerodynamics and Propulsion" only.
Civil Engineering	Bachelor's degree in Engineering / Technology in an appropriate area and a valid GATE score in: (a) 'CE' for the specializations of (i) Structural Engineering, (ii) Geotechnical Engineering, (iii) Environmental Engineering, (iv) Transportation Systems Engineering; (b) 'CE' or 'AR' for the specialization of "Infrastructure Engineering and Management"; and 'CE' or 'AG' for the specialization of "Water Resources Engineering and Management" only.
Chemical Engineering	Bachelor's degree in Engineering / Technology in an appropriate area (having Mass Transfer, Heat Transfer, Fluid Mechanics, Thermodynamics, Reaction Engineering, and Process Control, as subjects in undergraduate programme) and a valid GATE score in Chemical Engineering.
Biotechnology	Master's degree in Science or 4-year Bachelor's degree in Engineering, with biology or related subjects as one of the papers at the 10+2 level or later, along with a valid GATE score in related disciplines.

- Note: (I) Those appearing in qualifying examination may also appear in entrance examination for consideration of Provisional Admission.  
 (II) Candidate whose result of qualifying examination is not declared at the time of counselling they will not be allowed to appear in the counselling.  
 (III) For B. Tech Lateral Entry Counselling, first preference will be given to diploma holder and there after seats will be allotted to B.Sc holder candidates.

## 6. DOMICILE REQUIREMENTS

Those candidates who have passed/are appearing in the qualifying examination from/in other states, but have domicile of Uttarakhand are eligible to apply for admission under Uttarakhand quota. At the time of counselling, Domicile Certificate must be produced issued by the competent authority.

**\* Who has passed qualifying examination from Uttarakhand Technical Board/ Universities are also eligible for lateral entry seats but will not be eligible for any reservation**

## 7. RESERVATIONS

In Government Funded Institutes, the reservations for Uttarakhand candidates will apply as per Uttarakhand Government rules and **for all India seats, the reservations will be applicable as per the Central Government rules**. For courses conducted by University Departments/Government Engineering Colleges/Institutes, the intake will be through UKSEE-2018 only and the seats will be reserved as per norms of Uttarakhand Government. For self-financing institutes the reservation will be as per norms applicable at the time of counselling.

## 8. CATEGORY

Candidate in General Category and those claiming reservation of any type must indicate their category in the application form. Subsequent request for change of category shall not be entertained. **Categories must be supported by the relevant certificates to be produced at the time of Counselling**, failing which the candidate shall be treated in general category.

**Candidate should note that the OBC certificate must be issued after March 31, 2018.**

**No request for change of category shall be entertained afterwards.**

## 9. CENTRES FOR ADMISSION TEST

The admission test will be held at various centres listed below, However, Co-ordination Committee UKSEE 2018 reserves the right to allot or cancel any centre. Coordination Committee will make every possible effort to allocate centres to candidates as per their preference or to the nearest place opted by the candidates However, guarantee cannot be given in this connection and the decision of the Co-ordination Committee, UKSEE-2018 shall be final.

S. No.	Centre	Online/Offline	Day
1	Dehradun	Online/offline	10 <sup>th</sup> May 2018
2	Roorkee	Online/offline	10 <sup>th</sup> May 2018
3	Haldwani	Online/offline	10 <sup>th</sup> May 2018

S. No.	Centre	Online/Offline	Day
1	Dehradun	Online/offline	11 <sup>th</sup> May 2018
2	Roorkee	Online/offline	11 <sup>th</sup> May 2018
3	Haldwani	Online/offline	11 <sup>th</sup> May 2018
4	Dawahat	Online/offline	11 <sup>th</sup> May 2018
5	Srinagar	Online/offline	11 <sup>th</sup> May 2018
6	Pithoragarh	Offline	11 <sup>th</sup> May 2018
7	New Tehri	Offline	11 <sup>th</sup> May 2018
8	Gopeshwer	Offline	11 <sup>th</sup> May 2018

20 students at any centre (online), then the centre will be considered as offline. The detail of online / offline mode of examination will be mentioned in admit card.

## 10. SCHEME OF WRITTEN TEST

**UKSEE - 2018** will be conducted for nine papers with objective type questions. The candidates are required to opt papers and subjects for appearing in the entrance examination.

**Scoring** - All objective type questions (four options with single correct answer) would carry one mark for each correct answer.

- (i) More than one answer indicated against a question will be deemed as incorrect response.
- (ii) There will be no negative marking in objective type question papers. However, a record of incorrect answers given by a candidate will be kept separately. In case two or more candidates secure same total marks, inter-se-merit of such candidates shall be first determined by the number of incorrect answers given by the candidate.
- (iii) All objective type questions are required to be answered on specially designed OMR answer sheets.
- (iv) Answers are to be marked using ball point pen (Black/Blue) only. For the purpose of evaluation, Test Booklet Code written by the candidate in the OMR answer sheet will be accepted as final.

### **Papers and Subjects in the Entrance Examination**

<b>Paper</b>	<b>Subjects</b>	<b>Number of Questions</b>	<b>Marks</b>
Paper 1	Physics and Chemistry	50 objective type questions with equal weightage to Physics and Chemistry	50
Paper 2	Mathematics	50 objective type questions	50
Paper 3	Biology	50 objective type questions with equal weightage to Botany & Zoology	50
Paper 4	Aptitude Test for General Awareness (BHMCT)	100 objective type questions	100
Paper 5	Aptitude Test for MCA	100 objective questions	100
Paper 6	Aptitude Test for Engg. Diploma Holders (Lateral Entry)	100 objective type questions	100
Paper 7	Aptitude Test for Pharmacy	100 objective type questions	100
Paper 8	Aptitude Test for B.Sc. Graduates (Lateral Entry)	100 objective type questions	100

Paper	Subjects	Number of Questions	Marks
Paper 9	Aptitude test for MCA (Lateral entry) for BCA/B.Sc. CS/IT Students	100 objective type questions	100
Paper 10	Aptitude Test for MBA (As per CAT Examination)	100 objective type questions	100
Paper 11	Aptitude Test for M Pharm (As per GPAT Examination)	100 objective type questions	100
Paper 12	Test for M tech - Aptitude, General Knowledge, Knowledge of Basic Mathematics & Computers and Common Engineering Subjects from B Tech)	100 objective type questions	100

### Papers to be opted for Different Courses

Courses	Papers
B. Pharm. (I Year)	Paper 1; and Paper 2 or Paper 3
BHMCT (I Year)	Paper 4
MCA (I Year)	Paper 5
MBA (I Year)	Paper 10
M Pharm (I Year)	Paper 11
M Tech (I Year)	Paper 12
<b>Lateral Entry :</b>	
B. Tech., 2nd year (for Engg. Diploma Holders)	Paper 6
B. Pharm 2nd year (for Pharmacy Diploma Holders)	Paper 7
B. Tech. 2nd year (for B.Sc. Graduates)	Paper 8
MCA (Lateral entry) for BCA/B.Sc. CS/IT Students	Paper 9

## 11. SCHEDULE OF EXAMINATION

Date of Examination	Paper Code	Subjects	Timing	Total Time
Second Shift 10th May 2018 (Afternoon)	Paper 10	Aptitude Test for MBA (As per CAT Examination)	12:00 Noon to 02:00 PM	2.0 Hours
	Paper 11	Aptitude Test for M Pharm (As per GPAT Examination)		
	Paper 12	Test for M tech - Aptitude, General Knowledge, Knowledge of Basic Mathematics & Computers and Common Engineering Subjects from B Tech)		
First Shift 11 <sup>th</sup> May 2018 (Morning)	Paper 5	Aptitude test for MCA 1 <sup>st</sup> Year	09:00 AM to 11:00:00 AM	2.0 Hours
	Paper 1; Paper 2 or paper 3	B. Pharma. 1 <sup>st</sup> Year Physics & Chemistry ,Mathematics or Biology		
Second Shift 11 <sup>th</sup> May 2018 (Afternoon)	Paper 4	Aptitude test for General Awareness (BHMCT 1 <sup>st</sup> year)	12:00 Noon to 02:00 PM	2.0 Hours
	Paper 9	Aptitude test for MCA (L.E) (for BCA, B. Sc, IT/CS Students)		
Third Shift 11 <sup>th</sup> May 2018 (Evening)	Paper 6	B. Tech. (L.E) Aptitude test for Diploma Holder in Engg.	03:00 PM to 05:00 PM	2.0 Hours
	Paper 7	B. Pharma. (L.E) Aptitude test for Diploma Holder in Pharmacy		
	Paper 8	B. Tech. (L.E) Aptitude test for B. Sc. Graduates		

## 12. EVALUATION AND DECLARATION OF RESULT

The results of UKSEE-2018 along with answer keys will be declared by fourth week of June 2018. Based on performance of candidates in UKSEE-2018, separate merit list will be prepared for each course. Merit position, score-card with total marks, marks obtained in each subject and answer keys shall be available on website [www.uktech.ac.in](http://www.uktech.ac.in) after the declaration of result.

**In case two or more candidates secure equal marks, inter-se-merit of such candidates shall be determined as follows:**

- a. Firstly, by the number of incorrect answer given. A candidate giving lesser number of incorrect answers will be placed at higher merit.
- b. Second by Age only (Candidate with higher age will be placed at higher merit)
- c. By marks in qualifying examinations.

Candidates are advised to regularly check the website for updates. The University will intimate about the declaration of UKSEE 2018 result through the advertisement in the newspaper for the detailed results and further information regarding counseling dates etc., the candidates are advised to visit our website [www.uktech.ac.in](http://www.uktech.ac.in) regularly.

Counselling will be made on available seats on the day of counseling. Candidate will be responsible for collecting information from website University will not own any responsibility of information other than website : [www.uktech.ac.in](http://www.uktech.ac.in).

### 13. EXAMINATION FEE AND REFUND OF FEE

- Rs 1500/-(one thousand five hundred only) for General and OBC category candidates.
- Rs 750/-( Seven hundred fifty only) For SC & ST category candidates

Fees shall neither be refunded nor carried forwarded if the application for UKSEE-2018 is rejected/ candidature is found to be ineligible of candidate is unable to appear in the examination. Hence candidates are advised to read the eligibility criteria carefully before applying.

Fee of Rs 1500/- (Gen/OBC)/-and Rs.750/- (SC/ST)/- as described above will be paid online through Net Banking, Credit of Debit card only.

The portal to fill application form for UKSEE 2018 is <http://uktech.ac.in/>

### 14. SCOPE OF EXAMINATION, EVALUATION & ELIGIBILITY FOR ADMISSION UKSEE-2017 COURSES

There will be one question paper in competitive entrance examination for all UKSEE-2018 courses. The competitive entrance examination for UKSEE-2018 courses shall be of multiple choice, single correct response questions. The language of question paper is English and Hindi only. All the questions will be objective type with multiple (A, B, C, D) choice of which only one will be the most appropriate answer or the correct choice. Each answer with correct choice shall be awarded one mark. Zero mark shall be given to no answer/wrong answer/ more than one choice is indicated against a question.

**Answering method: Read the instruction of OMR Answer sheet and available on online examination portal carefully.**

**Negative Marking: There shall be no negative marking.**

**SYLLABUS** - The syllabus for the test shall comprise of subject/knowledge areas as per the latest Regulations issued by respective boards with prior approval of Government of India. The weightage in each specialty is indicative and purely provisional. The University reserves its rights to alter/vary/amend the same.

**Number of seats available for various courses and seat matrix (reservations) will**



**be displayed at the time of counselling.**

## **DISCLAIMER**

Instances of provision of incorrect information detected at any stage of the selection process will automatically disqualify the candidate from the selection process and he/she will not be allowed to appear for UKSEE in future. If such instances go undetected during the current selection process but are detected in subsequent years, such disqualification will take place with retrospective effect and the Principal/Dean of the concerned college/institute shall have the authority to cancel admission of the candidate and to proceed legal action against him/her as all the information/documents furnished by the candidate will be scrutinized/verified by competent authorities.

The statement made in information brochure and all information contained herein are believed to be correct at the time of publication/uploading in the website. However, the Uttarakhand Government reserve the right to make any change without notice, changes and additions to the regulations, conditions governing the admission procedure, conduct of students, requirements for degree, fees and any other information, or statements contained in this information bulletin at any time. Uttarakhand Government will not be responsible for hardship or expense incurred by the candidates or any other person or persons for such changes, additions, omissions or errors, no matter how they are caused.

**Registrar  
(UKSEE-2018)  
Uttarakhand Technical University,  
Dehradun**

## 15. SYLLABI FOR UKSEE-2018

### PAPER-1 (PHYSICS & CHEMISTRY)

#### PHYSICS

- Measurement: Dimensional analysis and error estimation, dimension compatibility and significant figures.
- Motion in one dimension: Average velocity, instantaneous velocity, one dimensional motion with constant accelerations, freely falling bodies.
- Laws of Motion: Force and inertia, Newton's laws of motion and their significance.
- Motion in two dimensions: Projectile motion, uniform circular motion, tangential and radial acceleration in curve-linear motion, relative motion and relative acceleration.
- Work, Power and Energy: Work done by a constant and variable forces, kinetic and potential energy, power, conservative and non-conservative forces, conservation of energy, gravitational energy, work energy theorem, potential energy stored in a spring.
- Linear Momentum & Collisions : Linear momentum and impulse, conservation of linear momentum for two particle system, collisions, collision in one dimension, collision in two dimension, rocket propulsion.
- Rotation of a rigid body about a fixed axis: Angular velocity and angular acceleration, rotational kinematics, rotational motion with constant angular acceleration relationship between angular and linear quantities, rotational energy, moment of inertia for a ring, rod, spherical shell, sphere and plane lamina, torque and angular acceleration, work and energy in rotational motion, rolling motion of a solid sphere and cylinder.
- Gravitation: Gravitational field, Kepler's laws and motion of planets, planetary and satellite motion, geostationary satellite.
- Oscillatory motion: Harmonic motion, oscillatory motion of mass attached to a spring, kinetic and potential energy, Time Period of a simple pendulum, comparing simple and harmonic motion with uniform circular motion, forced oscillations, damped oscillation and resonance.
- Mechanics of solids and fluids : States of matter young's modulus, bulk modulus, shear modulus of rigidity, variations of pressure with depth, Buoyant forces and Archimedes Principle, Pascal's law, Bernoulli's theorem and its application, surface energy, surface tension, angle of contact, capillary rise, coefficient of viscosity, viscous force, terminal velocity, Stoke's law, stream line motion, Reynold's numbers.
- Heat and thermodynamics : First law of thermodynamics, specify heat of an ideal gas at constant volume and constant pressure, relation between them, thermodynamics process (reversible, irreversible, isothermal, adiabatic), second law of thermodynamics, concept of entropy and concept of absolute scale, efficiency of a Carnot engine, thermal conductivity, Newton's law of cooling, black body radiation, Wien's displacement law, Stefan's law.
- Wave : Wave motion, phase, amplitude and velocity of wave, Newton's formula for longitudinal waves, propagation of sound waves in air, effect of temperature and pressure on velocity of sound, Laplace's correction, Principle of superposition, formation of standing waves, standing waves in strings and pipes, beats, Doppler's effect.
- Electrostatics: Coulomb's law, electric field and potential due to point charge,

dipole and its field along the axis and perpendicular to axis, electric flux, Gauss's theorem and its applications to find the field due to infinite sheet of charge, and inside the hollow conducting sphere, capacitance, parallel plate capacitor with air and dielectric medium between the Plates, series and parallel combination of capacitors, energy of a capacitor, displacement currents.

- Current Electricity: Concept of free and bound electrons, drift velocity and mobility, electric current, Ohm's law, resistivity, conductivity, temperature dependency of resistance, resistance in series and parallel combination, Kirchoff's law and their application to network of resistances, principle of potentiometer, effect of temperature on resistance and its application.
- Magnetic Effect of Current: Magnetic field due to current, Bio-Savart's law, magnetic field due to solenoid, motion of charge in a magnetic field, force on a current carrying conductors and torque on current loop in a magnetic field, magnetic flux, forces between two parallel current carrying conductors, moving coil galvanometer and its conversion into ammeter and voltmeter.
- Magnetism in Matter: The magnetization of substance due to orbital and spin motions of electrons, magnetic moment of atoms, diamagnetism, paramagnetism, ferromagnetism, earth's magnetic field and its components and their measurement.
- Electromagnetic Induction: Induced e.m.f., Faraday's laws, Lenz's law, electromagnetic induction, self and mutual induction, B-H curve, hysteresis loss and its importance, eddy currents.
- Ray Optics and optical instruments: Sources of light, luminous intensity, luminous flux, illuminance, photometry, wave nature of light, Huygen's theory for propagation of light and rectilinear propagation of light, reflection of light, total internal reflection, reflection and refraction at spherical surfaces, focal length of a combination of lenses, spherical and chromatic aberration and their removal, reflection and dispersion of light due to a prism, simple and compound microscope, reflecting and refracting telescope, magnifying power and resolving power.
- Wave Optics : Coherent and incoherent sources of light, interference, young's double slit experiment diffraction due to a single slit, linearly polarized light, Polaroid.
- Modern Physics : Photo-electric equation, matter waves, quantization, Planck's hypothesis, Bohr's model of hydrogen atom and its spectra, ionisation potential, Rydberg constant, solar spectrum and Fraunhofer lines, fluorescence and phosphorescence, X-Rays and their productions, characteristics and continuous spectra.
- Nuclear Instability, radioactive decay laws, Emission of  $\alpha$ ,  $\beta$ ,  $\gamma$  rays, Mass - defect, Mass Energy equivalence, Nuclear Fission Nuclear Reactors, Nuclear Fusion.
- Classification of conductors, Insulators and semiconductors on the basis of energy bands in solids, PN junction, PN Diode, junction Transistors, Transistors as an amplifier and Oscillators.
- Principles of Logic Gates (AND, OR and NOT) Analog Vs Digital communication, Difference between Radio and television, Signal propagation, Principle of LASER and MASER, Population Inversion, Spontaneous and stimulated Emission.

## **CHEMISTRY**

- Atomic Structure: Bohr's concept. Quantum numbers, Electronic configuration, molecular orbital theory for homonuclear molecules, Pauli's exclusion principle.
- Chemical Bonding: Electrovalency, co-valency, hybridization involving s,p and d

- orbitals hydrogen bonding.
- Redox Reactions: Oxidation number, oxidising and reducing agents, balancing of equations.
  - Chemical Equilibrium and Kinetics : Equilibrium constant (for gaseous system only) Le Chaterlier's principle, ionic equilibrium, Ostwald's dilution law, hydrolysis, pH and buffer solution, solubility product, common-ion effect, rate constant and first order reaction.
  - Acid-Base Concepts: Bronsted Lowry & Lewis.
  - Electrochemistry: Electrode potential and electro-chemical series.
  - Catalysis: Types and applications.
  - Colloids: Types and preparation, Brownian movement, Tyndall effect, coagulation and peptization.
  - Colligative Properties of Solution: Lowering of vapour pressure, Osmotic pressure, depression of freezing point elevation of boiling point, determination of molecular weight.
  - Periodic Table: Classification of elements on the basis of electronic configuration, properties of sp and d block elements, ionization potential, electronegativity & electron affinity.
  - Preparation and Properties of the following : Hydrogen peroxide, copper sulphate, silver nitrate, plaster of paris, borax, Mohr's salt, alums, white and red lead, microcosmic salt and bleaching powder, sodium thiosulphate.
  - Thermochemistry: Exothermic & endothermic reactions Heat of reaction, Heat of combustion & formation, neutralisation, Hess's law.
  - General Organic Chemistry: Shape of organic compounds, Inductive effect, mesomeric effect, electrophiles & nucleophiles, Reaction intermediates: carboniumion, carbanions & free radical, Types of organic reaction, Cannizzaro Friedel Craft, Perkin, Aldol condensation.
  - Isomerism : Structural, Geometrical & Optical
  - IUPAC: Nomenclature of simple organic compounds.
  - Polymers: Addition & condensation polymers
  - Carbohydrates: Monosaccharides
  - Preparation and Properties of the Followings : Hydrocarbons, monohydric alcohols, aldehydes, ketones, monocarboxylic acids, primary amines, benzene, nitrobenzene, aniline, phenol, benzaldehyde, benzoic acid, Grignard Reagent.
  - Solid State: Structure of simple ionic compounds, Crystal imperfections (point defects only), Born-Haber cycle.
  - Petroleum: Important industrial fractions, cracking, octane number, anti-knocking compounds.

## **PAPER - 2 (MATHEMATICS)**

- Algebra: Sets relations & functions, De-Morgan's Law, Mapping Inverse relations, Equivalence relations, Peano's axioms, Definition of rationals and integrals through equivalence relation, Indices and surds, solutions of simultaneous and quadratic equations, A.P., G.P. and H.P., Special sums i.e.  $S_n^2$  and  $S_n^3$  ( $nS_n$ ), Partial fraction, Binomial theorem for any index, exponential series, Logarithm and Logarithmic series. Determinants and their use in solving simultaneous linear equations, Matrices, Algebra of Matrices, Inverse of a Matrix, Use of Matrix for solving equations.
- Probability: Definition, Dependent and independent events, Numerical problem on addition and multiplication, theorem of probability.
- Trigonometry : Identities, Trigonometric equations, properties of triangles, solution of triangles, heights and distances, Inverse function, Complex numbers and their properties, Cube roots of unity, De-Moivre's theorem.
- Co-ordinate Geometry: Pair of straight lines, Circles, General equation of second degree, parabola, ellipse and hyperbola, tracing of conics.
- Calculus: Limits & continuity of functions, Differentiation of function of function, tangents & normal, Simple examples of Maxima, Indeterminate forms, Integration of function by parts, by substitution and by partial fraction, definite integral, application to volumes and surfaces of frustums of sphere, cone and cylinder. Differential equations of first order and of first degree.
- Vectors: Algebra of vectors, scalar and vector products of two and three vectors and their applications.
- Dynamics: Velocity, composition of velocity, relative velocity, acceleration, composition of accelerations, Motion under gravity, Projectiles, Laws of motion, Principles of conservation of momentum and energy, direct impact of smooth bodies.
- Statics: Composition of coplanar, concurrent and parallel forces moments and couples resultant of set of coplanar forces and condition of equilibrium, determination of centroid in simple cases, Problems involving friction.

## PAPER - 3 (BIOLOGY)

### ZOOLOGY

- Origin of Life: Oparin's theory, Miller's Experiment, Viruses - structure, properties, distribution, classification and pathogenesis (Eg. AIDS, CANCER), Viroids & Prions, Biotic balance.
- Organic Evolution: Relationship among organisms and Evidences of organic Evolution - Principles of Evolution - Lamarkism, Darwinism and Speciation.
- Mechanism of Organic Evolution : Variations - Definition, causes and types, Mutations (Principles of Hugo de'veries), Role of mutations in speciation. Evolution through ages and human evolution.
- Human Genetics and Eugenics: Human hereditary traits, study of Twins, A.B.O. blood groups and their inheritance, Rh-factor, Sex determination. Chromosomal aberrations, Important human syndromes, Sex linked characters and their inheritance, Applied Genetics - eugenics, euthenics, euphenics & I.Q. Test.
- Applied Biology : Wild life of India - Endangered species : Biosphere Reserves, National Parks
- and sanctuaries, Project Tiger, Conservation of wild life, Bio-energy, Poultry, Fisheries (edible fishes), Human Population, Population explosion, problems & control. Test-Tube babies, & Amniocentasis, Application of Biotechnology in human welfare. Human Aging.
- Mammalian Anatomy (Eg. Rabbit): Reproductive system (excluding embryonic development) Osteology, structure and organization of different systems.
- Animal Physiology :
  - A. *Animal Nutrition*: Food, Balanced diet, Nutritional imbalances and deficiency diseases, Digestion, Absorption, Assimilation of food, (comparison between human and Rabbit).
  - B. *Animal Excretion and Osmoregulation*: Chemical nature of excretory products in various animals, Physiology of excretion, Function of liver and Kidney (Homeostatic regulatory functions of kidneys), Formation of urine, Osmoregulation by kidneys.
  - C. *Respiratory System*: Exchange and transport of gases (O<sub>2</sub> and Co<sub>2</sub>) factors affecting O<sub>2</sub> and Co<sub>2</sub> transport, Cellular respiration, different lung volumes, breathing and sound production.
  - D. *Nervous System*: Central, autonomic and peripheral nervous system, Receptors, Effectors, Reflex-action. Nature and conduction of Nerve-impulses, Synapse, Sense organs - Structure & working of Eye & Ear, Biochemistry of vision and taste buds
  - E. *Endocrine System*: Different endocrine glands and Hormones - definition, types, characteristics and their functions, (in relation to human beings), Hormonal disorders and pheromones.
  - F. *Circulatory System*: Circulation of body fluids - Blood and lymph, Open and closed vascular systems, Structure and working physiology of Heart, Comparison between arteries and veins, Lymphatic system.

**G. Animal Diversity:** Classification of Animal kingdom (Based on Storar & Eusinger), Characteristic feature of different phyla and classes with examples.

- Detailed studies of following:

**A. Protozoa**

a. Amoeba- Habit & Habitat, structure, locomotion, reproduction, Osmoregulation, Parastic amoebae-Entamoeba histolytica and Entamoeba gengivalis, structure, diseases caused by them and their control measures.

b. Plasmodium vivax-life-cycle, malaria therapy and control.

c. Protozoan and diseases

**B. Porifera:** A simple sponge (Leucosolenia) : Detailed study of structure & physiology, Sponge industry.

**C. Coelenterata :** Hydra - Habit and Habitat, morphology, tissue differentiation in relation to physiological division of labour and regeneration.

**D. Aschelminthes :** Ascaris - morphology, life-cycle, therapy and control.

**E. Annelida :** Pheretima posthuma - Bionomics and economic importance.

**F. Arthropoda :** (Periplanata) : Structure - external and internal. Comparision between Periplanata and Blatta.

(i) Housefly & Mosquito : structure and life - cycle.

(ii) Economic importance of insets & their control.

## **BOTANY**

- Plant Cell: Structure & functions electron microscopic structure mitochondria, Plastids centrosomes. Lysosomes, microsomes, endoplasmic reticulum, Nuclear, Golgibodes, D.N.A. & R.N.A. cytoplasm, membranes and cell wall.
- Protoplasm: Structure, components physical and chemical properties.
- Cell division (formation) - free cell formation, Amitosis & Meosis, Duplication of D.N.A.
- Ecology: Ecological factors (atmospheric, edaphic, climatic, geological & biotic factors).
- Ecosystem: Structure, components of ecosystem eg. Water soluble minerals and gases, producers consumers, decomposers, Pond and forest ecosystem.
- Atmospheric pollution-causes and control, Types of pollution - Detergents, chemicals automobile exhaust, Radioactive matter, Smog, sound, Pesticides.
- Genetics: Mendalism, Mendals experiment and law of inheritance.
- Modern Classification of plant kingdom - (according to ostwald & Tippo) (outline).
- Seeds in angiospermic plants: description of development of angiospermic plants (life



- history of angiospermic plants).
- Fruits : Dispersal of fruits and seeds
  - Cell differentiation Plant Tissue: difference between dicot and Monocot stem. Secondary growth of stem and root. Anatomy of hydrophytes, Xerophytes & Mesophytes.
  - Important phylums :
    - Algae*: Habitat, general characters & uses, description of ulothrix & spirogyra.
    - Bacteria*: structure - types of nutrition, reproduction and economic importance.
    - Fungi*: structure description of Rhizopus and yeast and their economic importance, Fermentation.
    - Bryophyta*: structure and economic importance, description of funaria (Moss)
    - Pteridophyta* : general structures of pteridophytes description of fern (Droypteris)
  - General study of gymnosperms and life history of cycas.
  - Classification of angiospermn,
  - Description of families - identification and economic importance
  - Cruciferae, Malvaceae, Leguminosae, compositae, cucurbitaceae.
  - Soil: Absorption of water through root hairs osmosis, Translocation and Root pressure.
  - Nitrogen cycle - Special modes of nutrition in plants (Autotrophic, heterotrophic, Parasites, saprophytes, Symbionts insectivorous and their ecological relation.
  - Photosynthesis: Chloroplast, light, chlorophyll and Carbon dioxide, Mechanism of photosynthesis formation of A.T.P. and their functions and importance of photosynthesis.
  - Transpiration: factors and importance, Mechanism of opening and closing of stomata.
  - Respiration: aerobic, anaerobic respiration, mechanism of respiration (Glycolysis, Kreb's cycle, E.T.S.)
  - Growth & movement: definition of growth, Region of growth & their measurements, types of movements in plants, Growth hormone.

**PAPER - 4 (APTITUDE TEST FOR GENERAL AWARENESS (BHMCT))**

**A. Reasoning & Logical Deduction:**

Geometrical designs & Identification Selection of related letters / words / numbers / figures Identification of odd thing / item out from a group.

Completion of numerical series based on the pattern / logic

Fill in the blanks of the series based on the numerical pattern and logic of the series.

Syllogisms (logic based questions), Identification of logic & selection of correct answers based on the logic.

**B. Numerical Ability & Scientific Aptitude :**

Arithmetical questions up to 10th standard Calculation of fraction, percentages, square roots etc. Profit & Loss and Interest calculations

Data / Table analysis, Graph & Bar Diagram and Pie Chart analysis Questions related to common use of science (Physics & Chemistry) Health & Nutrition

**C. General Knowledge :**

Current affairs / Events (Political, Social, Cultural & Economic) Historical events

Geography including Tourist Places / Spots Current affairs relating to Business & Trade Countries & Currencies

Latest Who's Who?

Sports & Games

**D. English Language:**

Word Meanings Antonyms & Synonyms Meaning of Phrases & Idioms Fill in the blanks

Complete / Improvement of the sentences with correct use of Pronouns, Verbs, Adverbs & Adjectives

Reading comprehension's followed by questions

## **PAPER - 5 (APTITUDE TEST FOR MCA)**

### **1. Mathematics**

- Modern Algebra : Idempotent law, identities, complementary laws, Demorgan's theorem, mapping, inverse relation, equivalence relation, Piano's Axiom, definition of rational numbers and integers through equivalence relation.
  - Algebra : Surds, solution of simultaneous and quadratic equations, arithmetic, geometric and harmonic progression, Binomial theorem for any index, logarithms, exponential and logarithmic series, determinants.
  - Probability: Definition, dependent and independent events, numerical problems on addition and multiplication of probability, theorems of probability.
  - Trigonometry: Simple identities, trigonometric equations, properties of triangles, use of mathematical tables, solution of triangles, height and distance, inverse functions, DeMoiver's theorem.
  - Co-Ordinate Geometry : Co-Ordinate geometry of the straight lines, pair of straight lines, circle, parabola, ellipse and hyperbola and their properties.
  - Calculus : Differentiation of function of functions, tangents and normal, simple example of maxima of minima, limits of functions, integration of function (by parts, by substitution and by partial fraction), definite integral (application to volumes and surfaces of frustums of sphere, cone and cylinder).
  - Vectors: Position vector, addition and subtraction of vectors, scalar and vector products and their applications.
  - Dynamics: Velocity, composition of velocity, relative velocity, acceleration, composition of acceleration, motion under gravity, projectiles, laws of motions, principles of conservation of momentum and energy, direct impact of smooth bodies, pulleys.
  - Statics: Composition of co-planar, concurrent and parallel forces, moments and couples, resultant of set of coplanar forces and conditions of equilibrium, determination of Centroides in simple case, problems involving friction.
2. **Statistics: Theory of probability, Mean, Median, Mode, Dispersion and Standard Deviation.**
3. **Logical Ability** : Questions to test analytical and reasoning capability of candidates.

**PAPER- 6 (APTITUDE TEST FOR DIPLOMA HOLDERS IN ENGINEERING)**

- Engineering Mechanics, Engineering Graphics, Basic Electrical Engg., Basic Electronics Engg., Elements of computer science, Elementary Biology, Basic Workshop Practice and Physics/Chemistry/ Maths of Diploma standard.

**PAPER-7 (APTITUDE TEST FOR DIPLOMA HOLDERS IN PHARMACY)**

1. Pharmaceutics-I
2. Pharmaceutics-II
3. Pharmaceutical Chemistry-I
4. Pharmaceutical Chemistry-II
5. Pharmacognosy
6. Pharmacology and Toxicology
7. Biochemistry and Clinical Pathology
8. Pharmaceutical Jurisprudence
9. Human Anatomy and Physiology
10. Drug Store and Business management
11. Health Education & Community Pharmacy
12. Hospital and Clinical Pharmacy

## **PAPER- 8 (APTITUDE TEST FOR B.Sc. GRADUATE)**

- Linear Algebra: Matrix Algebra, Systems of linear equations, Eigen values and eigen vectors.
- Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivations, Maxima and minima, Multiple integrals, Fourier series. Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.
- Differential equations : First order equation (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's and Euler's equations, Initial and boundary value problems, Linear partial differential equations with constant coefficients of 2nd order and their classifications and variable separable method.
- Complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent's series, Residue theorem, solution integrals.
- Probability and Statistics: Sampling theorems, Conditional probability, Mean, Median, mode and standard deviation, Random variables. Discrete and continuous distributions, Poisson, Normal and Binomial distribution, Correlation and regression analysis.
- Fourier Series : Periodic functions, Trigonometric series, Fourier series of period  $2p$ , Eulers formulae, Functions having arbitrary period, Change of interval, Even and odd functions, Half range sine and cosine series.
- Transform Theory: Laplace transform, Laplace transform of derivatives and integrals, Inverse Laplace transform, Laplace transform of periodic functions, Convolution theorem, Application to solve simple linear and simultaneous differential equations.
- Fourier integral, Fourier complex transform, Fourier sine and cosine transforms and applications to simple heat transfer equations.
- Z-transform and its application to solve difference equations.

### **Paper – 9 MCA Lateral Entry (MCA Direct Second Year)**

- There shall be one paper of 90 minutes duration carrying 75 marks containing 75 multiple choice questions on mathematical Aptitude, Computer Science (BCA/B.Sc (CS)/B.Sc. (IT) Level and Logical Reasoning.
- Mathematical Aptitude Test Areas: Logarithms, Surds, solution of simultaneous and quadratic equations, Inequalities, Matrices and Determinants, Progressions, Binomial Expansion,
- Permutation and Combination, Function and Relation, 2-D Coordinate Geometry, Basics of Calculus, Basic Concepts of Probability.
- Algebraic Structure: Group, Ring and Fields. Boolean Algebra and Propositional Logic.
- Computer Science : Representation of information & Basic Building Blocks of Computer System , Basic Operating System Concept, Algorithm development, Programming Language, Procedural and Object Oriented Programming, Basics of Data Structure with Array, Stack,
- Queue, Tree, Fundamental of C++ and java Programming Languages.
- Relational Data Model, SQL, Database Design & Normalization.
- Fundamentals of Computer Network, Network Topology, TCP/IP and related protocols
- Accounting: Principal of accounting, Basic financial concepts, capital budgeting, casting, ratio analysis.
- Analytical and Logical Reasoning: Questions will be mainly for checking logical conclusion, graphical/data interpretation, etc.

### **Paper 10 - Aptitude Test for MBA (As per CAT Examination)**

- **English or Verbal Ability:** Reading comprehension, verbal reasoning, syllogisms, analogies, antonyms and synonyms, fill in the blanks, sentence correction, idioms, etc.
- **Maths or Quant Ability:** Number systems, geometry, trigonometry, probability, permutation combination, algebra, mensuration, time and work, averages, percentages, profit and loss, quadratic and linear equations, etc.
- **Data Interpretation:** Interpretation and analysis of data based on text, tables, graphs (line, area), charts (column, bar, pie), venn diagram, etc.
- **Logical Reasoning:** Clocks, calendars, binary logic, seating arrangement, blood relations, logical sequence, assumption, premise, conclusion, linear and matrix arrangement, etc.



## **Paper 11 - Aptitude Test for M Pharm (As per GPAT Examination)**

The important topics are as mentioned below -

- Physical Chemistry,
- Organic Chemistry,
- Pharmacology,
- Pharmacognosy,
- Biotechnology,
- Physical Pharmacy,
- Microbiology,
- Pharmaceutical Chemistry,
- Pharmaceutics,
- Pharmaceutical Analysis,
- Biochemistry,
- Anatomy, Physiology and Health Education,
- Pharmaceutical Engineering,
- Clinical Pharmacy and Therapeutics,
- Pharmaceutical Management,
- Pathophysiology,
- Biopharmaceutics and Pharmacokinetics,
- Pharmaceutical Jurisprudence,
- Dispensing & Hospital Pharmacy,

**Paper 12 - Test for M tech - Aptitude, General Knowledge, Knowledge of Basic Mathematics & Computers and Common Engineering Subjects from B Tech)**

- **English or Verbal Ability:** Reading comprehension, verbal reasoning, syllogisms, analogies, antonyms and synonyms, fill in the blanks, sentence correction, idioms, etc.
- **Maths or Quant Ability:** Number systems, geometry, trigonometry, probability, permutation combination, algebra, mensuration, time and work, averages, percentages, profit and loss, quadratic and linear equations, etc.
- **Data Interpretation:** Interpretation and analysis of data based on text, tables, graphs (line, area), charts (column, bar, pie), venn diagram, etc.
- **Logical Reasoning:** Clocks, calendars, binary logic, seating arrangement, blood relations, logical sequence, assumption, premise, conclusion, linear and matrix arrangement, etc.
- Fundamental of Computer Science
- Basic Electrical Engineering
- Basic Electronics Engineering
- Basic Mechanical Engineering
- Engineering Drawing



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